03040201-130

(Jeffries Creek)

General Description

Watershed 03040201-130 is located in Florence and Darlington Counties and consists primarily of ***Jeffries Creek*** and its tributaries. The watershed occupies 137,114 acres of the Upper and Lower Coastal Plain regions of South Carolina. The predominant soil types consist of an association of the Rains-Norfolk-Wagram series. The erodibility of the soil (K) averages 0.16; the slope of the terrain averages 2%, with a range of 0-6%. Land use/land cover in the watershed includes: 38.9% scrub/shrub land, 26.9% agricultural land, 17.2% forested land, 10.7% urban land, 5.7% forested wetland (swamp), and 0.6% water.

Jeffries Creek accepts drainage from Beaverdam Creek, Gulley Branch, Pye Branch, Middle Swamp (Oakdale Lake, Forest Lake, Alligator Branch, Billy Branch), Eastman Branch, and Cane Branch. Polk Swamp Canal (Adams Branch, Twomile Creek, Canal Branch) enters the system downstream, followed by Middle Branch, Long Branch, Boggy Branch, More Branch, and Willow Creek (Little Willow Creek, Cypress Creek, Spring Branch, Claussen Branch). The Jeffries Creek Watershed drains into the Pee Dee River. There are several ponds (totaling 353.2 acres) in this watershed, and a total of 194.8 stream miles. Jeffries Creek and Middle Swamp are classified FW* (dissolved oxygen not less than 4.0 mg/l and pH between 5.0 and 8.5) and the remaining streams in the watershed are classified FW.

Water Quality

Station #	Type	Class	Description
PD-255	S	FW*	JEFFRIES CREEK AT SC 340 6.8 MILES SSW OF DARLINGTON
PD-256	S	FW*	JEFFRIES CREEK AT S-21-112 4.8 MILES W OF FLORENCE
PD-065	P	FW	GULLEY BRANCH AT S-21-13, TIMROD PARK
PD-230	S	FW*	MIDDLE SWAMP AT SC 51 3.5 MILES SSE OF FLORENCE
PD-035	S	FW*	JEFFRIES CREEK AT SC 327 AT CLAUSSEN
PD-231	S	FW*	JEFFRIES CK AT UNNUMBERED ROAD 3.3 MILES ESE OF CLAUSSEN
PD-167	W	FW	WILLOW CREEK AT S-21-57

Jeffries Creek - There are four monitoring sites along Jeffries Creek and recreational uses are fully supported at all sites. This is a blackwater system, characterized by naturally low dissolved oxygen concentrations. Aquatic life uses are fully supported at the furthest upstream site ***(PD-255)***. Although dissolved oxygen excursions occurred, they were typical of values seen in blackwater systems and were considered natural, not standards violations. There was a significant increasing trend in dissolved oxygen concentration.

Aquatic life uses are also fully supported at the next site downstream ***(PD-256)***. Although dissolved oxygen excursions occurred, they were typical of values seen in blackwater systems and were considered natural, not standards violations. A very high concentration of copper was measured in the

1994 sediment sample and P,P' DDT and P,P'DDD (metabolites of DDT) were detected in the 1996 sample. Although the use of DDT was banned in 1973, it is very persistent in the environment.

Further downstream ***(PD-035)***, aquatic life uses are fully supported; however, there is a significant increasing trend turbidity. There is a significant decreasing trend in pH. Aquatic life uses are also fully supported at the furthest downstream site ***(PD-231)***; however, there is a significant increasing trend turbidity. Significant decreasing trends in five-day biochemical oxygen demand and total phosphorus concentration suggest improving conditions for these parameters.

Gulley Branch (PD-065) - Aquatic life uses are not supported due to occurrences of copper and zinc in excess of the aquatic life acute standards, including a high concentration of zinc measured in 1996. A significant decreasing trend in total nitrogen concentration suggests improving conditions for this parameter. Recreational uses are not supported due to fecal coliform bacteria excursions; however, a significant decreasing trend in fecal coliform bacteria concentration suggests improving conditions for this parameter.

Middle Swamp (PD-230) - Aquatic life uses are fully supported. This is a secondary monitoring station and sampling is purposely biased towards periods with potentially low dissolved oxygen concentrations. Middle Swamp frequently does not flow at the monitoring location, and although dissolved oxygen excursions occurred, they were typical of values seen in stagnant streams and were considered natural, not standards violations. A significant decreasing trend in five-day biochemical oxygen demand suggests improving conditions for this parameter. Recreational uses are partially supported due to fecal coliform bacteria excursions.

Willow Creek **(PD-167) -** Aquatic life uses are fully supported. This is a blackwater system, characterized by naturally low pH and dissolved oxygen concentrations. Although pH and dissolved oxygen excursions occurred, they were typical of values seen in blackwater systems and were considered natural, not standards violations. Recreational uses are fully supported.

NPDES Program

Active NPDES Facilities

RECEIVING STREAM ***FACILITY NAME*** ***PERMITTED FLOW @ PIPE (MGD)*** ***COMMENT***	***NPDES#*** ***TYPE*** ***LIMITATION***
BEAVERDAM CREEK GE MEDICAL SYSTEMS/FLORENCE PIPE #: 001 FLOW: 0.084	SC0004171 MINOR INDUSTRIAL EFFLUENT
BEAVERDAM CREEK CITY OF FLORENCE/DARLINGTON ST. WTP PIPE #: 001 FLOW: M/R WQL FOR TRC	SCG645026 MINOR INDUSTRIAL WATER QUALITY

PYE BRANCH CITY OF FLORENCE/PINE ST. WTP PIPE #: 001 FLOW: M/R	SCG645025 MINOR DOMESTIC EFFLUENT
PYE BRANCH KOPPERS INDUSTRIES PIPE #: 001 FLOW: 0.146	SC0003018 MINOR INDUSTRIAL EFFLUENT
PYE BRANCH CSX TRANSPORTATION PIPE #: 001 FLOW: 0.5	SC0001325 MINOR INDUSTRIAL EFFLUENT
POLK SWAMP CANAL CITY OF FLORENCE/EAST FLORENCE WTP PIPE #: 001 FLOW: M/R	SCG645017 MINOR INDUSTRIAL EFFLUENT
LITTLE WILLOW CREEK COMMANDER NURSING CENTER PIPE #: 001 FLOW: 0.025 WQL FOR DO,TRC,NH3N,BOD5	SC0034703 MINOR DOMESTIC WATER QUALITY

Nonpoint Source Management Program

Camp Facilities

FACILITY NAME/TYPE ***RECEIVING STREAM***	***PERMIT #*** ***STATUS***
SWAMP FOX CAMPING, INC./FAMILY MIDDLE SWAMP	21-0239 ACTIVE
JOHNSONS OVERNIGHT CAMPGROUND/FAMILY PYE BRANCH	21-0291 ACTIVE

Land Disposal Activities

Landfill Facilities

LANDFILL NAME ***FACILITY TYPE***	***PERMIT #*** ***STATUS***
FLORENCE COUNTY LANDFILL MUNICIPAL	211001-1101 (DWP-125) CLOSED
FLORENCE COUNTY C/C LANDFILL MUNICIPAL	211001-1601 (211001-1201, -------- CWP-042)
CITY OF FLORENCE TRANSFER STA. MUNICIPAL	212498-6001 ---------
CITY OF FLORENCE DUMP ---------	-------- CLOSED
EI DUPONT INDUSTRIAL	--------- ---------

Land Application Sites

LAND APPLICATION SYSTEM FACILITY NAME	*ND# TYPE*
PERCOLATION BASIN	ND0063801
COLLEGE APTS	DOMESTIC

Mining Activities

MINING COMPANY MINE NAME	*PERMIT # MINERAL*
PALMETTO SAND & FILL, INC.	0911-31
PALMETTO SAND #1	SAND

Growth Potential

There is a high potential for growth in this watershed, which contains most of the City of Florence. The Florence urban area is the commercial center of the Pee Dee region and is expected to continue to grow, particularly in the I-20/I-95 vicinity on the western edge of Florence, and the major highways leading into the urban area. The watershed is served by U.S. Hwy. 52, U.S. Hwy. 76, I-20, and I-95 as well as the interchange between the interstates to the west of Florence. The construction of a southeastern bypass around the Florence urban area is currently underway and its completion should encourage growth.

This watershed, including the Florence urban area, the Pee Dee River area, and the Hartsville area is expected to be an area of major industrial expansion over the next twenty years. There are several large public or private industrial parks, located along the western side of the Florence urban area, and should foster additional large-scale development. This watershed has extensive water system coverage, including service from the City of Hartsville, the Darlington County Water and Sewer Authority, the City of Florence, and Florence County. The City of Florence has under design a surface water treatment facility on the Pee Dee River that could evolve into a regional water treatment plant. The City of Florence has also expanded its wastewater treatment plant and constructed an outfall to the Pee Dee River, which should increase the availability of sewer service in the watershed and increase the likelihood of additional growth and development. A 700-acre industrial park is also planned for this area and should spur future growth.